Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims

1. (Currently Amended) A fluid sensor comprising:
a concentrator;
a separator connected to the concentrator;
a phased heater array having a first plurality of heating elements situated in the concentrator and a second plurality of heating elements situated in the separator, wherein the concentrator heating elements and separator heating elements are in a pre-arranged pattern;
a ratio control mechanism for changing the ratio of concentrator heating elements relative to separator heating elements, the ratio control mechanism connected to the phased heater array; and
at least a first detector connected to either the concentrator or the separator.

2. (Previously Presented) The sensor of claim 1, wherein the first detector is connected to the separator; the fluid sensor further comprising a micro discharge mechanism proximate to the first detector.

3. (Original) The sensor of claim 2, further comprising a second detector connected to the concentrator.

4. (Original) The sensor of claim 3, further comprising a flow sensor connected to the concentrator and the separator.

5. (Original) The sensor of claim 4, further comprising a processor connected to the detectors, concentrator, flow sensor, separator and micro discharge mechanism.

6. (Original) The sensor of claim 5, wherein the processor comprises switches and control logic.

7. (Original) The sensor of claim 6, wherein the switches and control logic are situated on a first board.

8. (Original) The sensor of claim 7, wherein the concentrator, separator and phased heater array are situated on a second board.

9. (Original) The sensor of claim 8, wherein the first board and second board are connected to each other.

10. (Original) The sensor of claim 9, wherein the first board and the second board are connected via solder bumps and/or wire-bonds.

11. (Withdrawn) A fluid sensor comprising:
a phased heater structure; and
at least one discharge device proximate to the phased heater structure.

12. (Withdrawn) The sensor of claim 11, further comprising a processor connected to the phased heater structure.

13. (Withdrawn) The sensor of claim 12, wherein:
the phased heater structure comprises a concentrator and a separator;
the concentrator has a first plurality of heaters of the phased heater structure;
the separator has a second plurality of heaters of the phased heater structure; and
a ratio of the first plurality of heaters relative to the second plurality of heaters may be varied.

14. (Withdrawn) The sensor of claim 13, wherein the concentrator may be a pre-concentrator.

15. (Withdrawn) The sensor of claim 12, further comprising switches and logic components connected to the phased heater structure.

16. (Withdrawn) The sensor of claim 15, wherein:
the phased heater structure is situated on a first chip;
the switches and logic components are situated on a second chip; and
the first and second chips are connected to each other.

17. (Withdrawn) The sensor of claim 16, wherein the first and second chips are connected via wire-bonds.

18. (Withdrawn) The sensor of claim 16, wherein the first and second chips are connected via solder-bumps.

19. (Withdrawn) A fluid sensor comprising:
a phased heater structure proximate on a first chip;
a plurality of switches and/or logic components on a second chip; and
the first chip and second chip are connected.

20. (Withdrawn) The sensor of claim 19, wherein the first and second chips are connected via solder-bumps.

21. (Withdrawn) The sensor of claim 19, wherein the first and second chips are connected via wire-bonds.

22. (Currently Amended) A fluid sensor comprising:
a concentrator having a first plurality of heater elements;
a separator having a second plurality of heater elements corresponding to the number of concentrator heater elements;
a controller connected to the concentrator and separator; and
a detector connected to either the concentrator or separator; and
wherein a ratio of the concentrator heater elements to the separator heater elements may be changed via the controller.

23. (Original) The sensor of claim 22, wherein the concentrator may be a pre-concentrator.

24. (Original) The sensor of claim 23, further comprising at least one discharge device proximate to the separator and connected to the controller.

25. (Original) The sensor of claim 23, wherein:
the concentrator and separator are on a first chip; and
the controller is on a second chip connected to the first chip.

26. (Original) The sensor of claim 25, wherein the first and second chips are connected via wire-bonds.

27. (Original) The sensor of claim 25, wherein the first and second chips are connected via solder-bumps.

28. (Original) The sensor of claim 24, further comprising at least one thermal-conductivity detector connected to the controller.

29. (Original) The sensor of claim 28, further comprising at least one flow sensor connected to the controller.

30. (Original) The sensor of claim 24, wherein the heater elements apply heat in a sequential phased manner to the concentrator.

31. (Withdrawn) A fluid sensor comprising:
means for concentrating a fluid with heating elements in a phased manner;
means for separating components of the fluid with heating elements; and
means for applying at least one discharge on the fluid.

32. (Withdrawn) The fluid sensor of claim 31, further comprising means for selecting a number of heating elements for the means for concentrating.

33. (Withdrawn) The fluid sensor of claim 31, further comprising a means for selecting a number of heating elements for the means for separating.

34. (Withdrawn) The fluid sensor of claim 31, wherein said means for applying at least one discharge on the fluid is for identifying a possible component of the fluid.

35. (Withdrawn) A method for sensing a fluid comprising:
concentrating a fluid with heating elements in a phased manner;
separating components of the fluid with heating elements;
applying at least one discharge to the fluid; and
detecting the at least one discharge applied to the fluid.

36. (Withdrawn) The method of claim 35, further comprising selecting a number of heating elements for concentrating the fluid.

37. (Withdrawn) The method of claim 36, further comprising selecting a number of heating elements for separating the fluid.

38. (Withdrawn) The method of claim 35, wherein detecting the at least one discharge applied to the fluid may provide identification of at least one component of the fluid.

39. (Withdrawn) The method of claim 36, further comprising changing the number of heating elements for concentrating the fluid.

40. (Withdrawn) The method of claim 38, further comprising determining a conductivity of the fluid.

41. (Withdrawn) The method of claim 37, wherein the heating elements are arranged in a pattern of concentrating and separating elements having coatings of various adsorber materials.

42. (Withdrawn) The method of claim 41, wherein the various adsorber materials contribute to separating various sets of gases from the fluid.

REMARKS/ARGUMENTS

Applicants have received and carefully reviewed the Office Action of the Examiner mailed April 30, 2007. Claims 1 and 22 have been amended. Claims 1-42 remain pending, with clams 11-21 and 31-42 withdrawn from consideration. Support for the amendments is found in the specification, claims, and drawings as originally filed. No new matter has been added. Reconsideration and reexamination are respectfully requested.

Rejection under 35 U.S.C. § 103(a)

Claims 1, 2, 5, 6, 22-24, and 28-30 are rejected as being unpatentable over Bonne (US 6,393,894). The Examiner asserts that Bonne teaches the invention substantially as claimed except for a plurality of heater elements in the separator. The Examiner acknowledges that Bonne teach a single heating element in the separator, but asserts that mere duplication of parts has no patentable significance unless a new and unexpected result is produced. Applicants respectfully traverse the rejection.

Independent claim 1, as amended, recites, in part:

> a phased heater array having a first plurality of heating elements situated in the concentrator and a second plurality of heating elements situated in the separator, wherein the concentrator heating elements and separator heating elements are in a pre-arranged pattern;

Emphasis added. Bonne does not appear to teach such a structure. Further, because Bonne teaches a single heating element in the separator, there is no motivation or suggestion for not only adding additional heating elements to the

separator, but for putting such additional heating elements in a pre-arranged pattern with the concentrator heating elements, as now claimed.

Independent claim 22, as amended, recites, in part:

> a concentrator having a first plurality of heater elements;
>
> a separator having a second plurality of heater elements corresponding to the number of concentrator heater elements;

Emphasis added. Bonne does not appear to teach such a structure. As discussed above, Bonne appears to teach a single heating element in the separator. Further, Bonne does not provide any suggestion or motivation for one of ordinary skill in the art to add additional separator heating elements, or to add them in numbers corresponding to the number of concentrator heater elements, as is now claimed.

Additionally, Bonne appears to teach a sensor assembly control block 180 that controls the timing of the plurality of heating elements in the concentrator and the single heater in the separator. See column 7, line 36 through column 8, line 37. While the controller 180 of Bonne appears to control the timing of the heating elements in the concentrator, there is no motivation for one of ordinary skill in the art to modify the controller to control a ratio of a plurality of concentrator and separator heating elements in a pre-arranged pattern.

The Examiner also asserts that Boone teaches a micro discharge mechanism located proximate to the first detector, pointing to the outlet below part 264 in Figure 9, and column 4, lines 14-19. Applicants respectfully traverse the rejection. Boone appears to teach a single detector 264 in figure 9. The

Examiner asserts that the unlabeled "outlet" is a micro discharge mechanism because it is microscopic in size and actively discharges the fluid from the chip. The Examiner merely points to a teaching of a microbridge system for support. MPEP 2143.03 recites:

> To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970).

Boone does not appear to teach or suggest the micro discharge mechanism proximate the first detector, as is recited in claim 2.

The Examiner acknowledges that Boone does not teach a plurality of heater elements in the separator, but asserts that the mere duplication of parts has not patentable significance unless a new and unexpected result is produced. The Examiner then asserts that the single separation heater separates the constituent gasses into individual components, and the use of a plurality of separation heater elements would be expected to provide a more precise separation of components, which would have been obvious to one of ordinary skill in the art.

Applicants respectfully disagree. The plurality of heating elements in the separator is not a mere duplicate. The presence of the plurality of separator heating elements in combination with the plurality of concentrator heating elements and the ratio control mechanism provides versatility to the fluid sensor by allowing the ratio of concentrator heating elements relative to separator heating elements to be changed. Changing the ratio